

### Claims

1. A compound of the formula (I)



or a pharmaceutically acceptable salt thereof, wherein

Z is selected from the group consisting of phenyl; naphthyl; indenyl; C<sub>3-7</sub> cycloalkyl; indanyl; tetralinyl; decalinyl; heterocycle; and heterobicycle, wherein Z is optionally substituted with one or more R<sup>8</sup>, wherein R<sup>8</sup> is independently selected from the group consisting of halogen; CN; OH; NH<sub>2</sub>; oxo (=O), where the ring is at least partially saturated; R<sup>9</sup>; and R<sup>10</sup>;

R<sup>9</sup> is selected from the group consisting of C<sub>1-6</sub> alkyl; O-C<sub>1-6</sub> alkyl; and S-C<sub>1-6</sub> alkyl, wherein R<sup>9</sup> is optionally interrupted by oxygen and wherein R<sup>9</sup> is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

R<sup>10</sup> is selected from the group consisting of phenyl; heterocycle; and C<sub>3-7</sub> cycloalkyl, wherein R<sup>10</sup> is optionally substituted with one or more R<sup>11</sup>, wherein R<sup>11</sup> is independently selected from the group consisting of halogen; CN; OH; NH<sub>2</sub>; oxo (=O), where the ring is at least partially saturated; C<sub>1-6</sub> alkyl; O-C<sub>1-6</sub> alkyl; and S-C<sub>1-6</sub> alkyl;

R<sup>1</sup>, R<sup>4</sup> are independently selected from the group consisting of H; F; OH; and R<sup>4a</sup>;

R<sup>2</sup>, R<sup>5</sup> are independently selected from the group consisting of H; F; and R<sup>4b</sup>;

R<sup>4a</sup> is independently selected from the group consisting of C<sub>1-6</sub> alkyl; and O-C<sub>1-6</sub> alkyl, wherein R<sup>4a</sup> is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

R<sup>4b</sup> is C<sub>1-6</sub> alkyl, wherein R<sup>4b</sup> is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

R<sup>3</sup> is selected from the group consisting of H; and C<sub>1-6</sub> alkyl;

Optionally one or more pairs of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup> independently selected from the group consisting of R<sup>1</sup>/R<sup>2</sup>; R<sup>2</sup>/R<sup>3</sup>; R<sup>3</sup>/R<sup>4</sup>; and R<sup>4</sup>/R<sup>5</sup> form a C<sub>3-7</sub> cycloalkyl ring, which is optionally substituted with one or more of R<sup>12</sup>, wherein R<sup>12</sup> is independently selected from the group consisting of F; Cl; and OH;

X is selected from the group consisting of S(O); S(O)<sub>2</sub>; C(O); and C(R<sup>13</sup>R<sup>14</sup>);

R<sup>13</sup>, R<sup>14</sup> are independently selected from the group consisting of H; F; C<sub>1-6</sub> alkyl; R<sup>15</sup>; and R<sup>16</sup>;

Optionally one or both pairs of R<sup>5</sup>, R<sup>13</sup>, R<sup>14</sup> selected from the group consisting of R<sup>5</sup>/R<sup>13</sup>; and R<sup>13</sup>/R<sup>14</sup> form a C<sub>3-7</sub> cycloalkyl ring, which is optionally substituted with one or more R<sup>17</sup>, wherein R<sup>17</sup> is independently selected from the group consisting of F; Cl; and OH;

R<sup>15</sup> is selected from the group consisting of phenyl; naphthyl; and indenyl, wherein R<sup>15</sup> is optionally substituted with one or more R<sup>18</sup>, wherein R<sup>18</sup> is independently selected from the group consisting of R<sup>19</sup>; R<sup>20</sup>; halogen; CN; COOH; OH; C(O)NH<sub>2</sub>; S(O)<sub>2</sub>NH<sub>2</sub>; S(O)NH<sub>2</sub>; C<sub>1-6</sub> alkyl; O-C<sub>1-6</sub> alkyl; S-C<sub>1-6</sub> alkyl; COO-C<sub>1-6</sub> alkyl; OC(O)-C<sub>1-6</sub> alkyl; C(O)N(R<sup>21</sup>)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>N(R<sup>21</sup>)-C<sub>1-6</sub> alkyl; S(O)N(R<sup>21</sup>)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; S(O)-C<sub>1-6</sub> alkyl; N(R<sup>21</sup>)S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; and N(R<sup>21</sup>)S(O)-C<sub>1-6</sub> alkyl, wherein each C<sub>1-6</sub> alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

R<sup>16</sup> is selected from the group consisting of heterocycle; heterobicycle; C<sub>3-7</sub> cycloalkyl; indanyl; tertralinyl; and decalinyl, wherein R<sup>16</sup> is optionally substituted with one or more R<sup>22</sup>, wherein R<sup>22</sup> is independently selected from the group consisting of R<sup>19</sup>; R<sup>20</sup>; halogen; CN; OH; oxo (=O), where the ring is at least partially saturated; NH<sub>2</sub>; COOH; C(O)NH<sub>2</sub>; S(O)<sub>2</sub>NH<sub>2</sub>; S(O)NH<sub>2</sub>; C<sub>1-6</sub> alkyl; O-C<sub>1-6</sub> alkyl; S-C<sub>1-6</sub> alkyl; N(R<sup>23</sup>)-C<sub>1-6</sub> alkyl; COO-C<sub>1-6</sub> alkyl; OC(O)-C<sub>1-6</sub> alkyl; C(O)N(R<sup>23</sup>)-C<sub>1-6</sub> alkyl; N(R<sup>23</sup>)-C(O)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>N(R<sup>23</sup>)-C<sub>1-6</sub> alkyl; S(O)N(R<sup>23</sup>)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; S(O)-C<sub>1-6</sub> alkyl; N(R<sup>23</sup>)S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; and N(R<sup>23</sup>)S(O)-C<sub>1-6</sub> alkyl, wherein each C<sub>1-6</sub> alkyl is optionally

substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$R^{19}$  is selected from the group consisting of phenyl; and naphthyl, wherein  $R^{19}$  is optionally substituted with one or more  $R^{24}$ , wherein  $R^{24}$  is independently selected from the group consisting of halogen; CN; COOH; OH; C(O)NH<sub>2</sub>; S(O)<sub>2</sub>NH<sub>2</sub>; S(O)NH<sub>2</sub>; C<sub>1-6</sub> alkyl; O-C<sub>1-6</sub> alkyl; S-C<sub>1-6</sub> alkyl; COO-C<sub>1-6</sub> alkyl; OC(O)-C<sub>1-6</sub> alkyl; C(O)N(R<sup>25</sup>)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>N(R<sup>25</sup>)-C<sub>1-6</sub> alkyl; S(O)N(R<sup>25</sup>)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; S(O)-C<sub>1-6</sub> alkyl; N(R<sup>25</sup>)S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; and N(R<sup>25</sup>)S(O)-C<sub>1-6</sub> alkyl, wherein each C<sub>1-6</sub> alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$R^{20}$  is selected from the group consisting of heterocycle; heterobicycle; and C<sub>3-7</sub> cycloalkyl; wherein  $R^{20}$  is optionally substituted with one or more  $R^{26}$ , wherein  $R^{26}$  is independently selected from the group consisting of halogen; CN; OH; oxo (=O), where the ring is at least partially saturated; NH<sub>2</sub>; COOH; C(O)NH<sub>2</sub>; S(O)<sub>2</sub>NH<sub>2</sub>; S(O)NH<sub>2</sub>; C<sub>1-6</sub> alkyl; O-C<sub>1-6</sub> alkyl; S-C<sub>1-6</sub> alkyl; N(R<sup>27</sup>)-C<sub>1-6</sub> alkyl; COO-C<sub>1-6</sub> alkyl; OC(O)-C<sub>1-6</sub> alkyl; C(O)N(R<sup>27</sup>)-C<sub>1-6</sub> alkyl; N(R<sup>27</sup>)-C(O)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>N(R<sup>27</sup>)-C<sub>1-6</sub> alkyl; S(O)N(R<sup>27</sup>)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; S(O)-C<sub>1-6</sub> alkyl; N(R<sup>27</sup>)S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; and N(R<sup>27</sup>)S(O)-C<sub>1-6</sub> alkyl wherein each C<sub>1-6</sub> alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$R^{21}$ ,  $R^{23}$ ,  $R^{25}$ ,  $R^{27}$  are independently selected from the group consisting of H; and C<sub>1-6</sub>alkyl, which is optionally substituted with one or more of  $R^{28}$ , wherein  $R^{28}$  is independently selected from the group consisting of F; Cl and OH;

$R^6$ ,  $R^7$  are independently selected from the group consisting of H; (C(R<sup>29</sup>R<sup>30</sup>))<sub>m</sub>-X<sup>1</sup>-Z<sup>1</sup>; and (C(R<sup>31</sup>R<sup>32</sup>))<sub>n</sub>-X<sup>2</sup>-X<sup>3</sup>-Z<sup>2</sup>, provided that  $R^6$ ,  $R^7$  are selected so that not both of  $R^6$ ,  $R^7$  are independently selected from the group consisting of H; CH<sub>3</sub>; CH<sub>2</sub>CH<sub>3</sub>; CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>; and CH(CH<sub>3</sub>)<sub>2</sub>;

Optionally  $R^6$ ,  $R^7$  are independently C<sub>1-4</sub> alkyl, which is substituted with one or more  $R^{29a}$ , wherein  $R^{29a}$  is independently selected from the group consisting of  $R^{29b}$ ; and Z<sup>1</sup>, provided that  $R^6$ ,  $R^7$  are selected so that not both of  $R^6$ ,  $R^7$  are independently selected from the group consisting of CH<sub>3</sub>; CH<sub>2</sub>CH<sub>3</sub>; CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>; and CH(CH<sub>3</sub>)<sub>2</sub>;

$R^{29}$ ,  $R^{29b}$ ,  $R^{30}$ ,  $R^{31}$ ,  $R^{32}$  are independently selected from the group consisting of H; halogen; CN; OH;  $NH_2$ ; COOH;  $C(O)NH_2$ ;  $S(O)_2NH_2$ ;  $S(O)NH_2$ ;  $C_{1-6}$  alkyl; O- $C_{1-6}$  alkyl;  $N(R^{32a})-C_{1-6}$  alkyl; COO- $C_{1-6}$  alkyl; OC(O)- $C_{1-6}$  alkyl;  $C(O)N(R^{32a})-C_{1-6}$  alkyl;  $N(R^{32a})-C(O)-C_{1-6}$  alkyl;  $S(O)_2N(R^{32a})-C_{1-6}$  alkyl;  $S(O)N(R^{32a})-C_{1-6}$  alkyl;  $S(O)_2-C_{1-6}$  alkyl;  $S(O)-C_{1-6}$  alkyl;  $N(R^{32a})S(O)_2-C_{1-6}$  alkyl; and  $N(R^{32a})S(O)-C_{1-6}$  alkyl wherein each  $C_{1-6}$  alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$R^{32a}$  is selected from the group consisting of H; and  $C_{1-6}$  alkyl, which is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

Optionally one or more pairs of  $R^{29}$ ,  $R^{30}$ ,  $R^{31}$ ,  $R^{32}$  independently selected from the group consisting of  $R^{29}/R^{30}$ ; and  $R^{31}/R^{32}$  form a  $C_{3-7}$  cycloalkyl ring, which is optionally substituted with one or more  $R^{32b}$ , wherein  $R^{32b}$  is independently selected from the group consisting of F; Cl; and OH;

m is 0, 1, 2, 3 or 4;

n is 2, 3 or 4;

$X^1$  is independently selected from the group consisting of a covalent bond;  $-C_{1-6}$  alkyl-;  $-C_{1-6}$  alkyl-O-;  $-C_{1-6}$  alkyl- $N(R^{33})$ -;  $-C(O)$ -;  $-C(O)-C_{1-6}$  alkyl-;  $-C(O)-C_{1-6}$  alkyl-O-;  $-C(O)-C_{1-6}$  alkyl- $N(R^{33})$ -;  $-C(O)O$ -;  $-C(O)O-C_{1-6}$  alkyl-;  $-C(O)O-C_{1-6}$  alkyl-O-;  $-C(O)O-C_{1-6}$  alkyl- $N(R^{33})$ -;  $-C(O)N(R^{33})$ -;  $-C(O)N(R^{33})-C_{1-6}$  alkyl-;  $-C(O)N(R^{33})-C_{1-6}$  alkyl-O-;  $-C(O)N(R^{33})-C_{1-6}$  alkyl- $N(R^{34})$ -;  $-S(O)_2$ -;  $-S(O)$ -;  $-S(O)_2-C_{1-6}$  alkyl-;  $-S(O)-C_{1-6}$  alkyl-;  $-S(O)_2-C_{1-6}$  alkyl-O-;  $-S(O)-C_{1-6}$  alkyl-O-;  $-S(O)_2-C_{1-6}$  alkyl- $N(R^{33})$ -; and  $-S(O)-C_{1-6}$  alkyl- $N(R^{33})$ -; wherein each  $C_{1-6}$  alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$X^2$  is selected from the group consisting of  $-O$ -;  $-S$ -;  $-S(O)$ -;  $S(O)_2$ -; and  $-N(R^{35})$ -;

$X^3$  is selected from the group consisting of a covalent bond;  $-C_{1-6}$  alkyl-;  $-C_{1-6}$  alkyl-O-;  $-C_{1-6}$  alkyl- $N(R^{36})$ -;  $-C(O)$ -;  $-C(O)-C_{1-6}$  alkyl-;  $-C(O)-C_{1-6}$  alkyl-O-;  $-C(O)-C_{1-6}$  alkyl- $N(R^{36})$ -;  $-C(O)O$ -;  $-C(O)O-C_{1-6}$  alkyl-;  $-C(O)O-C_{1-6}$  alkyl-O-;  $-C(O)O-C_{1-6}$  alkyl- $N(R^{36})$ -;  $-C(O)N(R^{36})$ -;  $-C(O)N(R^{36})-C_{1-6}$  alkyl-;  $-C(O)N(R^{36})-C_{1-6}$  alkyl-O-; and  $-C(O)N(R^{36})-C_{1-6}$  alkyl- $N(R^{37})$ -; wherein each  $C_{1-6}$  alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

Optionally  $X^2-X^3$  are independently selected from the group consisting of  $-N(R^{35})-S(O)_2$ ;  $-N(R^{35})-S(O)$ -;  $-N(R^{35})-S(O)_2-C_{1-6}$  alkyl-;  $-N(R^{35})-S(O)-C_{1-6}$  alkyl-;  $-N(R^{35})-S(O)_2-C_{1-6}$  alkyl-O-;  $-N(R^{35})-S(O)-C_{1-6}$  alkyl-O-;  $-N(R^{35})-S(O)_2-C_{1-6}$  alkyl- $N(R^{36})$ -; and  $-N(R^{35})-S(O)-C_{1-6}$  alkyl- $N(R^{36})$ -; wherein each  $C_{1-6}$  alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$R^{33}$ ,  $R^{34}$ ,  $R^{35}$ ,  $R^{36}$ ,  $R^{37}$  are independently selected from the group consisting of H; and  $C_{1-6}$  alkyl, which is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$Z^1$ ,  $Z^2$  are independently selected from the group consisting of  $Z^3$ ; and  $-C(R^{37a})Z^{3a}Z^{3b}$ ;

$R^{37a}$  is selected from the group consisting of H; and  $C_{1-6}$  alkyl, which is optionally substituted with one or more F;

$Z^3$ ,  $Z^{3a}$ ,  $Z^{3b}$  are independently selected from the group consisting of H;  $T^1$ ;  $T^2$ ;  $C_{1-6}$  alkyl;  $C_{1-6}$  alkyl- $T^1$ ; and  $C_{1-6}$  alkyl- $T^2$ ; wherein each  $C_{1-6}$  alkyl is optionally substituted with one or more  $R^{37b}$ , wherein  $R^{37b}$  is independently selected from the group consisting of halogen; CN; OH;  $NH_2$ ; COOH;  $C(O)NH_2$ ;  $S(O)_2NH_2$ ;  $S(O)NH_2$ ;  $C_{1-6}$  alkyl; O- $C_{1-6}$  alkyl;  $N(R^{37c})-C_{1-6}$  alkyl; COO- $C_{1-6}$  alkyl; OC(O)- $C_{1-6}$  alkyl;  $C(O)N(R^{37c})-C_{1-6}$  alkyl;  $N(R^{37c})-C(O)-C_{1-6}$  alkyl;  $S(O)_2N(R^{37c})-C_{1-6}$  alkyl;  $S(O)N(R^{37c})-C_{1-6}$  alkyl;  $S(O)_2-C_{1-6}$  alkyl;  $S(O)-C_{1-6}$  alkyl;  $N(R^{37c})S(O)_2-C_{1-6}$  alkyl; and  $N(R^{37c})S(O)-C_{1-6}$  alkyl; wherein each  $C_{1-6}$  alkyl is optionally substituted with one or more halogen independently selected from the group consisting of F; and Cl;

$T^1$  is selected from the group consisting of phenyl; naphthyl; and indenyl; wherein  $T^1$  is optionally substituted with one or more  $R^{38}$ ; wherein  $R^{38}$  is independently selected from the group consisting of halogen; CN;  $R^{39}$ ; COOH; OH;  $C(O)NH_2$ ;

$S(O)_2NH_2$ ;  $S(O)NH_2$ ;  $COOT^3$ ;  $OT^3$ ;  $ST^3$ ;  $C(O)N(R^{40})T^3$ ;  $S(O)_2N(R^{40})T^3$ ;  $S(O)N(R^{40})T^3$  and  $T^3$ ;

$T^2$  is selected from the group consisting of  $C_{3-7}$  cycloalkyl; indanyl; tetralinyl; decalinyl; heterocycle; and heterobicycle; wherein  $T^2$  is optionally substituted with one or more  $R^{41}$ , wherein  $R^{41}$  is independently selected from the group consisting of halogen; CN;  $R^{42}$ ; OH; oxo (=O), where the ring is at least partially saturated;  $NH_2$ ; COOH;  $C(O)NH_2$ ;  $S(O)_2NH_2$ ;  $S(O)NH_2$ ;  $COOT^3$ ;  $OT^3$ ;  $C(O)N(R^{43})T^3$ ;  $S(O)_2N(R^{43})T^3$ ;  $S(O)N(R^{43})T^3$ ;  $N(R^{43})T^3$ ; and  $T^3$ ;

$R^{39}$  is selected from the group consisting of  $C_{1-6}$  alkyl; O- $C_{1-6}$  alkyl; S- $C_{1-6}$  alkyl; COO- $C_{1-6}$  alkyl; OC(O)-  $C_{1-6}$  alkyl;  $C(O)N(R^{44})$ - $C_{1-6}$  alkyl;  $S(O)_2N(R^{44})$ - $C_{1-6}$  alkyl;  $S(O)N(R^{44})$ - $C_{1-6}$  alkyl;  $S(O)$ - $C_{1-6}$  alkyl;  $S(O)_2$ - $C_{1-6}$  alkyl;  $N(R^{44})S(O)_2$ - $C_{1-6}$  alkyl; and  $N(R^{44})S(O)$  - $C_{1-6}$  alkyl; wherein each  $C_{1-6}$  alkyl is optionally substituted with one more  $R^{45}$ , wherein  $R^{45}$  is independently selected from the group consisting of F; COOR<sup>46</sup>;  $C(O)N(R^{46}R^{47})$ ;  $S(O)_2N(R^{46}R^{47})$ ; OR<sup>46</sup>;  $N(R^{46}R^{47})$ ;  $T^3$ ; O- $T^3$ ; and  $N(R^{46})$ - $T^3$ ;

$R^{42}$  is selected from the group consisting of  $C_{1-6}$  alkyl; O- $C_{1-6}$  alkyl; S- $C_{1-6}$  alkyl;  $N(R^{48})$ - $C_{1-6}$  alkyl; COO- $C_{1-6}$  alkyl; OC(O)-  $C_{1-6}$  alkyl;  $C(O)N(R^{48})$ -  $C_{1-6}$  alkyl;  $N(R^{48})$ - $C(O)$ - $C_{1-6}$  alkyl;  $S(O)_2N(R^{48})$ - $C_{1-6}$  alkyl;  $S(O)N(R^{48})$ - $C_{1-6}$  alkyl;  $S(O)$ - $C_{1-6}$  alkyl;  $S(O)_2$ - $C_{1-6}$  alkyl; - $N(R^{48})S(O)_2$ - $C_{1-6}$  alkyl; and - $N(R^{48})S(O)$ - $C_{1-6}$  alkyl; wherein each  $C_{1-6}$  alkyl is optionally substituted with one or more  $R^{45}$ , wherein  $R^{45}$  is independently selected from the group consisting of F; COOR<sup>49</sup>;  $C(O)N(R^{49}R^{50})$ ;  $S(O)_2N(R^{49}R^{50})$ ;  $S(O)N(R^{49}R^{50})$ ; OR<sup>49</sup>;  $N(R^{49}R^{50})$ ;  $T^3$ ; O- $T^3$ ; and  $N(R^{49})$ - $T^3$ ;

$R^{40}$ ,  $R^{43}$ ,  $R^{44}$ ,  $R^{46}$ ,  $R^{47}$ ,  $R^{48}$ ,  $R^{49}$ ,  $R^{50}$  are independently selected from the group consisting of H; and  $C_{1-6}$  alkyl;

$T^3$  is selected from the group consisting of  $T^4$ ; and  $T^5$ ;

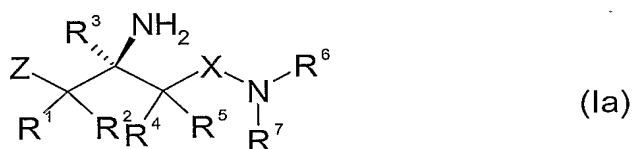
$T^4$  is selected from the group consisting of phenyl; naphthyl; and indenyl; wherein  $T^4$  is optionally substituted with one or more  $R^{51}$ , wherein  $R^{51}$  is independently selected from the group consisting of halogen; CN; COOR<sup>52</sup>; OR<sup>52</sup>;  $C(O)N(R^{52}R^{53})$ ;  $S(O)_2N(R^{52}R^{53})$ ;  $C_{1-6}$  alkyl; O- $C_{1-6}$  alkyl; S- $C_{1-6}$  alkyl; COO- $C_{1-6}$  alkyl; OC(O)- $C_{1-6}$  alkyl;  $C(O)N(R^{52})$ -  $C_{1-6}$  alkyl;  $S(O)_2N(R^{52})$ - $C_{1-6}$  alkyl;  $S(O)N(R^{52})$ - $C_{1-6}$  alkyl;  $S(O)_2$ - $C_{1-6}$  alkyl;

S(O)-C<sub>1-6</sub> alkyl; N(R<sup>52</sup>)S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; and N(R<sup>52</sup>)S(O)-C<sub>1-6</sub> alkyl; wherein each C<sub>1-6</sub> alkyl is optionally substituted with one more halogen selected from the group consisting of F; and Cl;

T<sup>5</sup> is selected from the group consisting of heterocycle; heterobicycle; C<sub>3-7</sub> cycloalkyl; indanyl; tetralinyl; and decalinyl; wherein T<sup>5</sup> is optionally substituted with one or more R<sup>54</sup>, wherein R<sup>54</sup> is independently selected from the group consisting of halogen; CN; OR<sup>55</sup>; oxo (=O), where the ring is at least partially saturated; N(R<sup>55</sup>R<sup>56</sup>); COOR<sup>55</sup>; C(O)N(R<sup>55</sup>R<sup>56</sup>); S(O)<sub>2</sub>N(R<sup>55</sup>R<sup>56</sup>); S(O)N(R<sup>55</sup>R<sup>56</sup>); C<sub>1-6</sub> alkyl; O-C<sub>1-6</sub> alkyl; S-C<sub>1-6</sub> alkyl; N(R<sup>55</sup>)-C<sub>1-6</sub> alkyl; COO-C<sub>1-6</sub> alkyl; OC(O)-C<sub>1-6</sub> alkyl; C(O)N(R<sup>55</sup>)-C<sub>1-6</sub> alkyl; N(R<sup>55</sup>)-C(O)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>N(R<sup>55</sup>)-C<sub>1-6</sub> alkyl; S(O)N(R<sup>55</sup>)-C<sub>1-6</sub> alkyl; S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; S(O)-C<sub>1-6</sub> alkyl; N(R<sup>55</sup>)S(O)<sub>2</sub>-C<sub>1-6</sub> alkyl; and N(R<sup>55</sup>)S(O)-C<sub>1-6</sub> alkyl; wherein each C<sub>1-6</sub> alkyl is optionally substituted with one more halogen selected from the group consisting of F; and Cl;

R<sup>52</sup>, R<sup>53</sup>, R<sup>55</sup>, R<sup>56</sup>, are independently selected from the group consisting of H; and C<sub>1-6</sub> alkyl.

2. A compound according to claim 1 of formula (Ia)



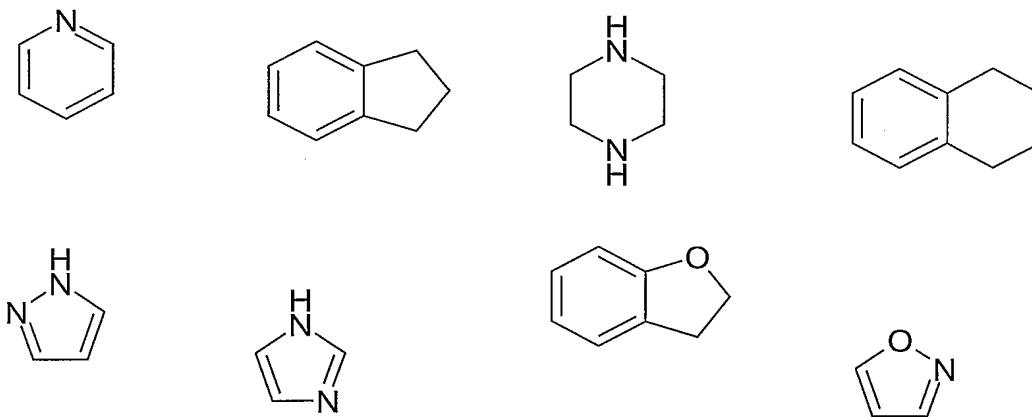
or a pharmaceutically acceptable salt thereof, wherein Z, R<sup>1</sup>-R<sup>7</sup> and X have the meaning as indicated in claim 1.

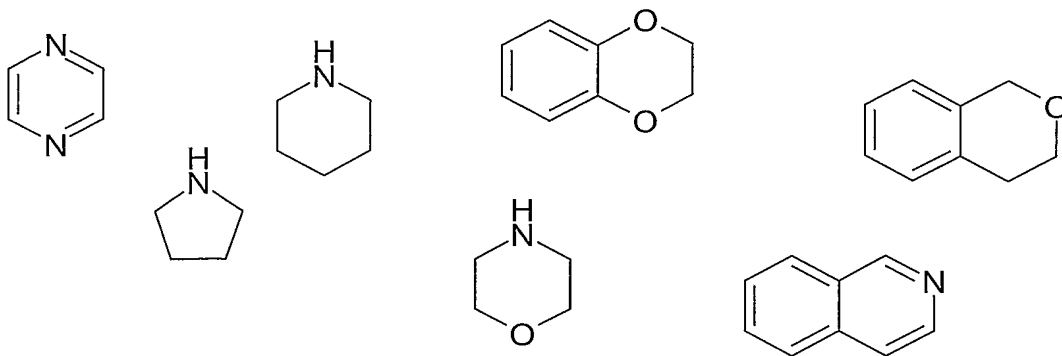
3. A compound according to claim 1 or 2, wherein Z is phenyl or heterocycle.
4. A compound according to any one of the preceding claims, wherein Z is optionally substituted with 1 or 2 R<sup>8</sup>, which are the same or different.
5. A compound according to any one of the preceding claims, wherein R<sup>8</sup> is selected from the group consisting of Cl; F; CN; CH<sub>3</sub>; and OCH<sub>3</sub>.

6. A compound according to any one of the preceding claims, wherein Z is 2-Fluoro-phenyl.
7. A compound according to any one of the preceding claims, wherein  $R^1$ ,  $R^4$  are independently selected from the group consisting of H; F; OH;  $CH_3$ ; and  $OCH_3$ .
8. A compound according to any one of the preceding claims, wherein  $R^2$ ,  $R^5$  are independently selected from the group consisting of H; F; and  $CH_3$ .
9. A compound according to any one of the preceding claims, wherein  $R^1$ ,  $R^2$ ,  $R^4$ ,  $R^5$  are H.
10. A compound according to any one of the preceding claims, wherein  $R^3$  is H.
11. A compound according to any one of the preceding claims, wherein X is C(O) or  $S(O)_2$ .
12. A compound according to any one of the preceding claims, wherein  $R^6$  is selected from the group consisting of H; and  $CH_3$ .
13. A compound according to any one of the preceding claims, wherein  $X^1$  is a covalent bond.
14. A compound according to any one of the preceding claims, wherein m is 0, 1, 2 or 3.
15. A compound according to any one of the preceding claims, wherein  $R^7$  is  $Z^1$ .
16. A compound according to any one of the preceding claims, wherein  $R^7$  is  $C_{1-4}$  alkyl, substituted with 1-4  $R^{29a}$ , which are the same or different.
17. A compound according to claim 16, wherein  $R^7$  is selected from the group consisting of  $CH(R^{29a})_2$ ;  $CHR^{29a}-CH_2R^{29a}$ ;  $CH_2-CH(R^{29a})_2$ ;  $CH_2-CHR^{29a}-CH_2R^{29a}$ ; and  $CH_2-CH_2-CH(R^{29a})_2$ .



18. A compound according to any one of the preceding claims, wherein  $R^{29a}$  is selected from the group consisting of  $R^{29b}$ ; and  $Z^1$ ; and wherein  $R^{29b}$  is selected from the group consisting of H; F; Cl;  $NH_2$ ;  $NHCH_3$ ;  $N(CH_3)_2$ ;  $CH_3$ ; and  $C_2H_5$ .
19. A compound according to any one of the preceding claims, wherein  $R^{29a}$  is selected from the group consisting of  $R^{29b}$ ; and  $Z^1$ ; and wherein  $Z^1$  is selected from the group consisting of  $T^1$ ; and  $T^2$ .
20. A compound according to any one of the preceding claims, wherein  $T^1$  is phenyl; and wherein  $T^1$  is optionally substituted with 1-3  $R^{38}$ , which are the same or different.
21. A compound according to any one of the preceding claims, wherein  $R^{38}$  is independently selected from the group consisting of F; Cl; CN;  $CH_3$ ;  $C_2H_5$ ;  $CH_2CH_2CH_3$ ;  $CH(CH_3)_2$ ;  $CF_3$ ; O- $CH_3$ ; O- $C_2H_5$ ; S- $CH_3$ ;  $SO_2NH_2$ ;  $T^3$ ; and O- $T^3$ .
22. A compound according to any one of the preceding claims, wherein  $T^2$  is selected from the group consisting of





and wherein  $T^2$  is optionally substituted with 1-2  $R^{41}$ , which are the same or different.

23. A compound according to any one of the preceding claims, wherein  $R^{41}$  is selected from the group consisting of OH;  $CH_3$ ; and  $T^3$ ;

24. A compound according to any one of the preceding claims, wherein  $T^3$  is  $T^4$ .

25. A compound according to any one of the preceding claims, wherein  $T^4$  is phenyl, wherein  $T^4$  is optionally substituted with 1-3  $R^{51}$ , which are the same or different.

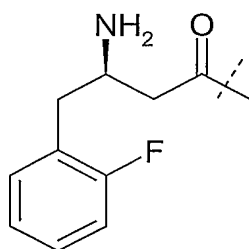
26. A compound according to any one of the preceding claims, wherein  $R^{51}$  is independently selected from the group consisting of F; Cl;  $CH_3$ ;  $C_2H_5$ ;  $CH_2CH_2CH_3$ ;  $CH(CH_3)_2$ ;  $CF_3$ ; O- $CH_3$ ; O- $C_2H_5$ ; S- $CH_3$ ; and  $SO_2NH_2$ .

27. A compound according to any one of the preceding claims, wherein  $T^3$  is  $T^5$ .

28. A compound according to any one of the preceding claims, wherein  $T^5$  is heterocycle, wherein  $T^5$  is optionally substituted with 1-2  $R^{54}$ , which are the same or different.

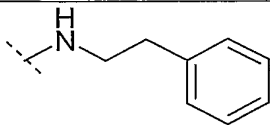
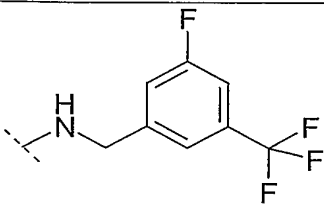
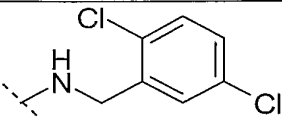
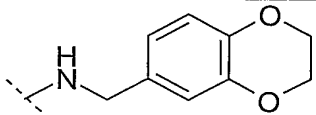
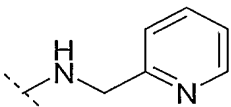
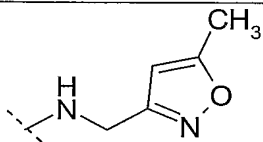
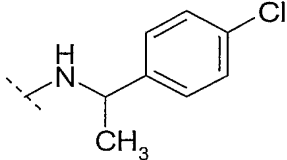
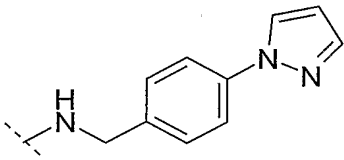
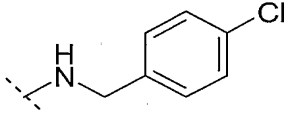
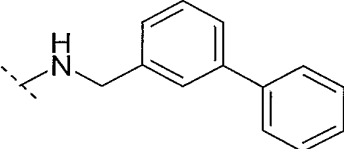
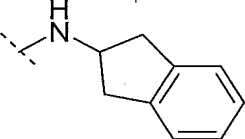
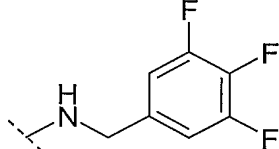
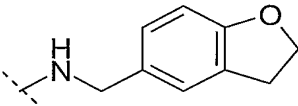
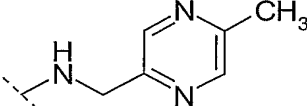
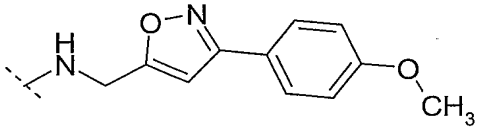
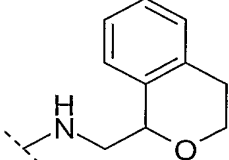
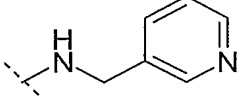
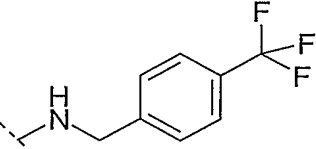
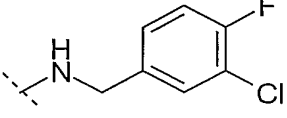
29. A compound according to any one of the preceding claims, wherein  $R^{54}$  is selected from the group consisting of OH; and  $CH_3$ .

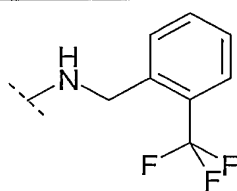
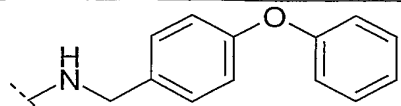
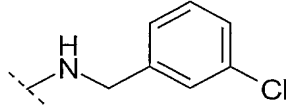
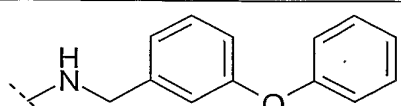
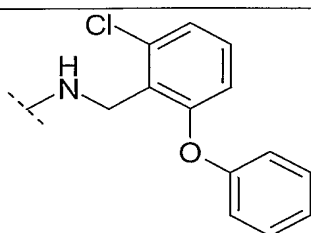
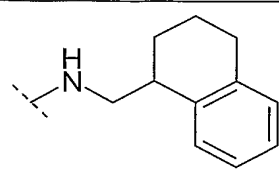
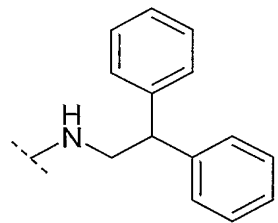
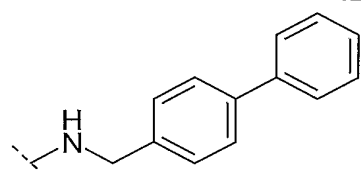
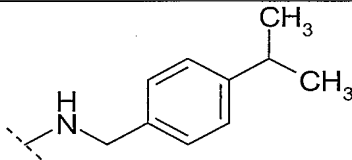
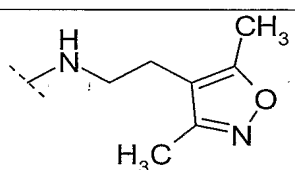
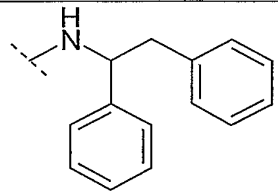
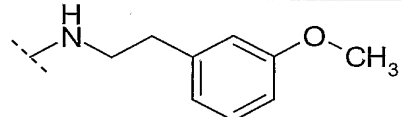
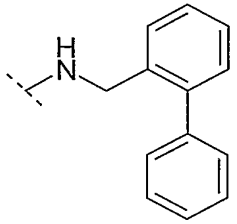
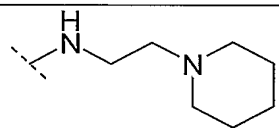
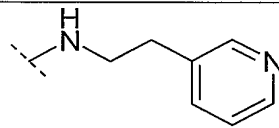
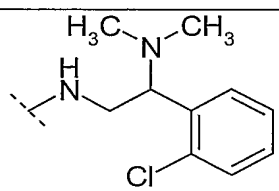
30. A compound according to claim 1 selected from the group consisting of



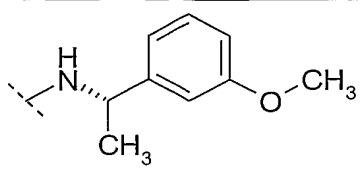
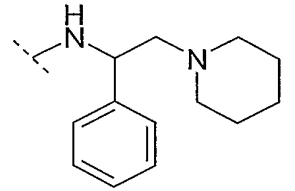
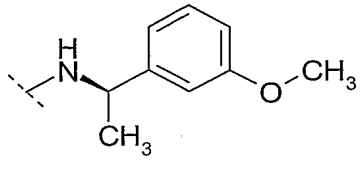
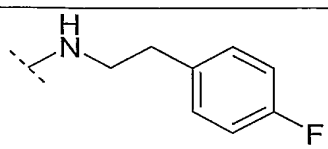
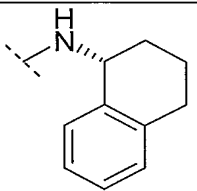
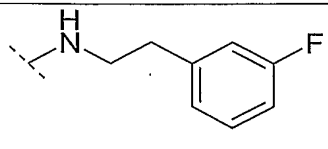
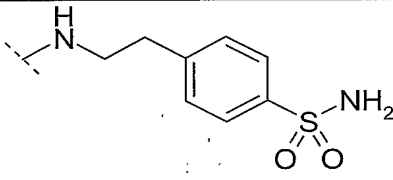
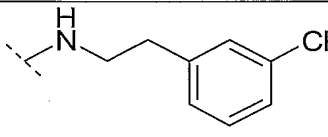
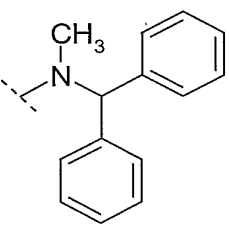
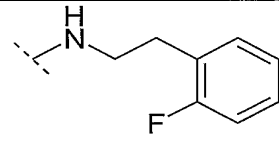
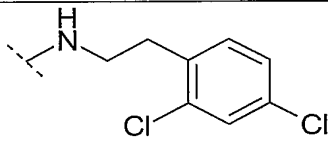
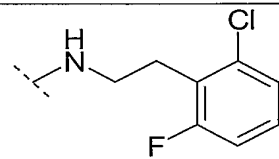
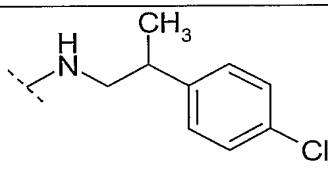
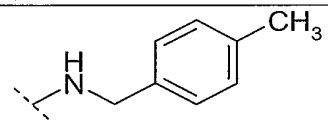
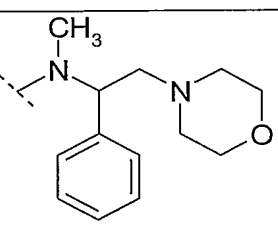
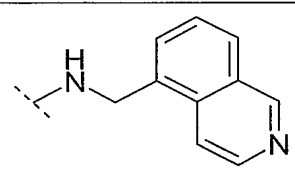
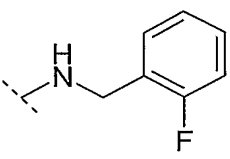
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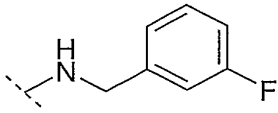
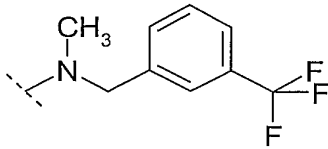
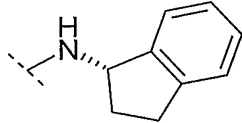
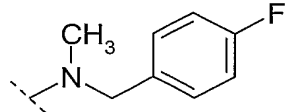
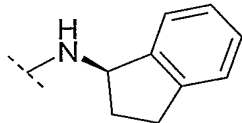
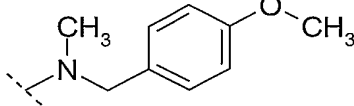
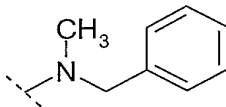
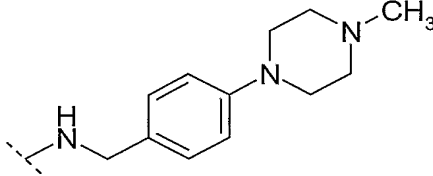
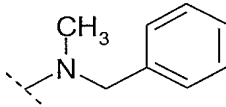
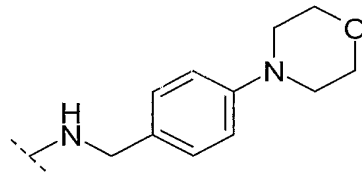
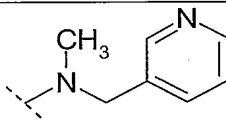
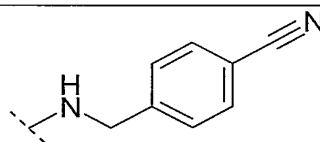
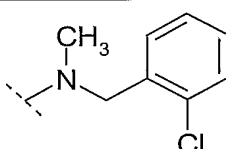
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31. A prodrug compound of a compound according to any one of the claims 1 to 30.

32. A pharmaceutical composition comprising a compound or a pharmaceutically acceptable salt thereof according to any one of the claims 1 to 31 together with a pharmaceutically acceptable carrier.

33. A pharmaceutical composition according to claim 32, comprising one or more additional compounds or pharmaceutically acceptable salts thereof selected from the group consisting of another compound according to any one of the claims 1 to 27; another DPP-IV inhibitor; insulin sensitizers; PPAR agonists; biguanides;



protein tyrosinephosphatase-1B (PTP-1B) inhibitors; insulin and insulin mimetics; sulfonylureas and other insulin secretagogues;  $\alpha$ -glucosidase inhibitors; glucagon receptor antagonists; GLP-1, GLP-1 mimetics, and GLP-1 receptor agonists; GIP, GIP mimetics, and GIP receptor agonists; PACAP, PACAP mimetics, and PACAP receptor 3 agonists; cholesterol lowering agents; HMG-CoA reductase inhibitors; sequestrants; nicotinic alcohol; nicotinic acid or a salt thereof; PPAR $\alpha$  agonists; PPAR $\alpha$ / $\gamma$  dual agonists; inhibitors of cholesterol absorption; acyl CoA : cholesterol acyltransferase inhibitors; anti-oxidants; PPAR $\alpha$  agonists; antiobesity compounds; an ileal bile acid transporter inhibitor; and anti-inflammatory agents.

34. A compound or a pharmaceutically acceptable salt thereof of any one of the claims 1 to 31 for use as a medicament.
35. Use of a compound or a pharmaceutically acceptable salt thereof of any of the claims 1 to 31 for the manufacture of a medicament for the treatment or prophylaxis of non-insulin dependent (Type II) diabetes mellitus; hyperglycemia; obesity; insulin resistance; lipid disorders; dyslipidemia; hyperlipidemia; hypertriglyceridemia; hypercholesterolemia; low HDL; high LDL; atherosclerosis; growth hormone deficiency; diseases related to the immune response; HIV infection; neutropenia; neuronal disorders; tumor metastasis; benign prostatic hypertrophy; gingivitis; hypertension; osteoporosis; diseases related to sperm motility; low glucose tolerance; insulin resistance; its sequelae; vascular restenosis; irritable bowel syndrome; inflammatory bowel disease; including Crohn's disease and ulcerative colitis; other inflammatory conditions; pancreatitis; abdominal obesity; neurodegenerative disease; anxiety; depression; retinopathy; nephropathy; neuropathy; Syndrome X; ovarian hyperandrogenism (polycystic ovarian syndrome; Type II diabetes; or growth hormone deficiency.

36. Use of a compound according to any one of the claims 1 to 31 as DPP-IV inhibitor.